

# **Chapter I**

## **State Sanitary Code**

### **SUBPART 6-1**

#### **SWIMMING POOLS**

**(Statutory authority: Public Health Law, § 225)**

***Includes Amendments***

***Effective November 15, 2000***

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## GENERAL PROVISIONS

### Section 6-1.1 Purpose.

The purpose of this Subpart is to assure a sanitary, healthful and safe environment for the public when using swimming pools.

### 6-1.2 Definitions.

- (a) Swimming pool shall mean a structure, together with buildings and appurtenances used in connection therewith, intended for bathing, swimming or diving purposes, made of concrete, masonry, metal, or other impervious material, located either indoors or outdoors.
- (b) Wading pool shall mean a swimming pool that contains water a maximum of two feet deep.
- (c) Spa pool shall mean a swimming pool, primarily designed for therapeutic use or relaxation, which is normally not drained, cleaned or refilled for each individual. It may include, but is not limited to, hydrojet circulation, hot water, cold water, mineral bath, air induction, bubbles or any combination thereof. Spa pools are shallow in depth and are not designed for swimming or diving.
- (d) White-water slide shall mean a swimming pool consisting of a starting platform, one or more flumes, and a plunge pool.
- (e) Wave pool shall mean a swimming pool of special shape and design, with water-wave-making machinery.
- (f) Special-purpose pool shall mean a swimming pool of special design primarily for use by persons with physical disabilities.
- (g) Movable-bottom pool shall mean a swimming pool with a hydraulic lift arrangement for floor movement and a jet water self-cleaning system.
- (h) Permit-issuing official (PIO) shall mean the State Commissioner of Health, the health commissioner or health officer of a city of 50,000 population or over, the health commissioner or health officer of a county or part-county health district, the State regional health director or district director having jurisdiction, or any county or public health director having all the powers and duties prescribed in section 352 of the Public Health Law. The permit-issuing official may designate additional persons to act in his behalf to issue permits required by this Subpart.
- (i) Bathing shall mean to become partially or totally immersed in water.

(j) Adequate shall mean sufficient to accomplish the purposes for which something is intended, and to such a degree that no unreasonable risk to health or safety is presented. An item installed, maintained, designed and assembled, an activity conducted or act performed, in accordance with generally accepted standards, principles or practices applicable to a particular trade, business, occupation or profession, is adequate within the meaning of this Subpart.

(k) Uniform Code shall mean the New York State Uniform Fire Prevention and Building Code, 9 NYCRR Subtitle S, Chapter I.

(l) Qualified swimming pool treatment operator shall mean an individual possessing evidence of the successful completion of either of the following courses:

(1) a New York State Department of Health Water Treatment Plant Operator Certification Course Type A or B; or

(2) an adequate course of instruction regarding the safe and effective operation and maintenance of pool treatment equipment.

(m) Aquatic supervisory staff shall mean, effective May 15, 1993, an individual possessing the qualifications as found in section 6-1.31 for Supervision Levels II, III or IV and section 6-2.20(a) of Subpart 6-2 for Supervision Level I.

(n) Effective May 15, 1993, supervising lifeguard shall mean, an individual at least 18 years of age, who possesses as minimum qualifications Supervision Level IIb, and has at least two seasons of adequate lifeguarding experience.

(o) Homeowner swimming pool means a swimming pool owned and operated by a condominium (i.e., property subject to the Article 9-B of the Real Property Law, also known as the Condominium Act), a property commonly known as a cooperative, in which the property is owned or leased by a corporation, the stockholders of which are entitled, solely by reason of their ownership of stock in the corporation, and occupy apartments for dwelling purposes, provided an "offering statement" or "prospectus" has been filed with the Department of Law, or an incorporated or unincorporated property association, all of whose members own residential property in a fixed or defined geographical area with deeded rights to use, with similarly situated owners, a defined swimming pool, provided such swimming pool is used exclusively by members of the condominium, cooperative apartment project or corporation or association, and their family and friends.

### **6-1.3 Application.**

(a) The requirements of this Subpart shall apply to all swimming pools except:

(1) a swimming pool, or other bathing facility, owned and/or maintained by an individual for the use of his family and friends;

(2) spa pools used under medical supervision or associated with hospitals;

and

(3) float tank or relaxation tank used for solitary body immersion in skin-temperature salt water.

(b) Section 6-1.5 of this Subpart shall not apply to swimming pools maintained and operated in connection with a temporary residence or children's camp subject to the regulations of Subpart 7-1 or 7-2 of this Title.

#### **6-1.4 Enforcement.**

(a) Permits and placarding.

(1) Operation of a swimming pool without a permit is a violation of this Subpart. The permit-issuing official may order any swimming pool operating without a permit to close and remain closed until the facility has obtained and displays a valid permit.

(2) The enforcement procedures delineated in sections 12, 12-a, 12-b, 16, 308, 309, 1303-1305 and 1308 of the Public Health Law may be used, as appropriate. Where a public health hazard is found, the pool shall be placarded to prohibit use until the hazard is corrected in order to protect the public health or safety of bathers. When a placard is used, it shall be conspicuously posted at each entrance leading to the pool. The placard shall state the authority for its placement and indicate that concealment, mutilation, alteration or removal of it by any person without permission of the permit-issuing official shall constitute a violation of this Chapter and the Public Health Law.

(3) Within 15 days of placarding of a facility, the operator of such facility shall be provided with an opportunity to be heard and present proof that continued operation of the facility does not constitute a danger to the public health. The hearing shall be conducted by the permit-issuing official or his designated hearing officer.

(4) The permit-issuing official or his designated representative shall inspect the premises, within two working days of notification that the hazard has been eliminated, to remove the placards after verifying correction.

(b) Public health hazards. Any of the following violations are public health hazards which require the permit-issuing official or designated representative to order immediate correction or to immediately institute action as provided in the law and in this Subpart:

(1) failure to provide adequate supervision of the swimming pool as prescribed in section 6-1.23 of this Subpart;

(2) failure to provide the minimum disinfectant residual levels listed in various sections of this Subpart;

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- (3) failure to continuously operate the swimming pool's filtration and disinfection equipment;
  - (4) use of an unapproved or contaminated water supply source for potable water use;
  - (5) overhead electrical wires within 20 feet horizontally of the swimming pool;
  - (6) unprotected electrical circuits or wiring within 10 feet of the swimming pool;
  - (7) failure to maintain emergency lighting source as required in section 6-1.17(h) of this Subpart;
  - (8) absence of all lifesaving equipment on swimming pool deck;
  - (9) Swimming pool bottom not visible;
  - (10) absence of or improper depth markings at a swimming pool;
  - (11) plumbing cross-connections between the drinking water supply and swimming pool water or between sewerage system and the swimming pool's filter backwash facilities;
  - (12) failure to provide and maintain an enclosure around the swimming pool area that will prevent access to the swimming pool during the hours in which the pool is not open for use;
  - (13) use of unapproved chemicals or the application of chemicals by unapproved methods to the swimming pool water;
  - (14) broken or missing main drain grate in the swimming pool;
  - (15) overcrowding of the swimming pool that results in poor supervision of bathers;
  - (16) glass or sharp objects in swimming pool or on deck area; or
  - (17) any other item determined to be a public health hazard by the permit-issuing official.
- (c) Other violations. Violations of other sections of this Subpart or of other Parts of this Chapter are also subject to a penalty upon conviction.

#### **6-1.5 Permit for operation.**

- (a) No municipality, school district, person, group of persons, firm, corporation, association, organization or institution shall operate or maintain or permit the use of any swimming pool and other related facilities without a permit from the permit-issuing official to be issued subject to the provisions of this Chapter and such

additional sanitary or safety safeguards as may be required by the permit-issuing official. The permit shall be posted conspicuously at the facility.

(b) Application for a permit shall be made to the permit-issuing official at least 30 days before the expiration of a permit or at least 30 days before the opening of any swimming pool.

#### **6-1.6 Variance and waivers.**

(a) Variance. The permit-issuing official may, on written application and after review, grant a variance from a specific provision of this Subpart, subject to appropriate conditions which shall include a time schedule for compliance when such variance is in harmony with the general purposes and intent of this Part, and when there are practical difficulties or unnecessary hardship in complying with such provision.

(b) Waiver. The permit issuing official may waive, in writing, any of the requirements of this Subpart, and include the waiver as a condition of the permit to operate, when it reasonably appears that the public health will not be endangered by granting of such waiver and adequate alternative provisions have been made to protect the safety of the bathers and the public. A copy of the waiver and description of the alternative provisions shall be submitted by the permit-issuing official to the State Commissioner of Health at the time of issuance. Such waiver shall remain in effect for a period of time concurrent with the operating permit, unless sooner revoked for cause.

#### **6-1.7 Injury and illness incident reporting.**

A full report of any injury or illness incident occurring at a swimming pool shall be reported by the pool owner/operator to the permit-issuing official within 24 hours of its occurrence, and a notation recorded in a log book. This shall include all incidents occurring at a bathing facility which: (a) result in death; (b) require resuscitation; (c) require referral to a hospital or other facility for medical attention; or (d) is a bather illness associated with bathing water quality.

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## CONSTRUCTION

### 6-1.8 Approval of plans.

(a) No municipality, school district, person, group of persons, firm, corporation, association, organization or institution shall install or construct a swimming pool, or make any addition or modification to an existing swimming pool, until plans and specifications receive the approval of the permit-issuing official. All plans shall be prepared by a person licensed by the State of New York to practice engineering or architecture. The permit-issuing official may require, when granting this approval, such modifications or conditions as the public health or safety may require.

(b) Design standards for swimming pools (see section 6-1.29 of this Subpart) shall be the basis upon which all plans for swimming pools shall be reviewed, approved and constructed.

(c) Plans for any potable water treatment or sewage treatment facilities to be constructed onsite at swimming pools shall be approved prior to construction, by the permit-issuing official or such agency having jurisdiction for such plan approval.

### 6-1.9 Construction compliance certificate.

The operator shall submit, prior to public use of new facilities or equipment, a construction compliance certificate to the permit-issuing official. This certificate shall be prepared and signed by a professional engineer or architect licensed to practice in New York State. The certificate shall include a statement that the pool and the appurtenances have been constructed in accordance with approved plans and specifications.

## OPERATION, SUPERVISION AND MAINTENANCE

### 6-1.10 Pool operation.

(a) Every swimming pool shall be maintained and operated in a clean, safe and sanitary manner at all times. Swimming pool recirculation and disinfection equipment shall be operated continuously.

(b) Swimming pool equipment and appurtenances shall be operated and maintained in accordance with approved plans and specifications.

(c) Cracks in the pool walls, floors, perimeter overflow systems, and decks shall be repaired when determined to be potential leakage or tripping hazards.

(d) A four-inch stripe of contrasting color shall be provided and maintained at the slope breakpoint or five-foot depth point on the pool bottom, and at submerged step edges and ledges. Plainly visible depth markings shall also be provided and maintained in accordance with the provisions of section 6-1.29, item 6.1.1, of this Subpart. A floating line shall be provided at the slope breakpoint or five-foot



depth point.

(e) Main drain grates shall be secured in place at all times. Broken or missing main drain grates shall be repaired or replaced before the pool is used.

(f) Inlets shall be adjusted to produce uniform circulation of water and to facilitate the maintenance of a uniform disinfectant residual throughout the swimming pool.

(g) The overflow system shall be maintained to continuously remove floating matter and surface water.

(h) Skimmer weirs and throttle valves shall be maintained in working order and the skimmer covers shall be secure. Skimmer baskets shall be cleaned at least daily.

(i) The water level in the swimming pool shall be maintained to provide:

(1) adequate skimming of the entire pool surface; and (2) required depths in areas for diving as set forth in this section.

(j) The deck shall be unobstructed for at least a five-foot width around the entire pool. The deck shall be kept clean and free of puddled water. Glass containers are prohibited from the swimming pool and all deck areas.

(k) The pool walls and bottom shall be vacuumed or brushed daily or as needed to remove visible settleable material. Ladders, handrails, diving equipment, lifeguard chairs, slides and other deck equipment shall be kept firmly secured to the deck, and maintained in good repair. A minimum of one ladder or set of steps shall be provided in any pool over two feet deep.

(l) Diving depth requirements:

(1) Swimming pools equipped with diving boards prior to the effective date (March 30, 1988) of this Subpart shall meet the minimum water depth and swimming pool and diving board dimensions listed in Columns (1) to (4) in the following table:

Board Height Above Water	(1) Minimum Board Overhang Over Water	(2) Minimum Water Depth In Diving Area	(3) Minimum Diving Area Forward of Board Tip	(4) Maximum Slope to 5' Water Depth
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			Width   Length	
Up to 24"	2'6"	8'	4'   13'6"	1:3
*24" - 26"	2'6"	8 1/2'	8'   10'	1:3
*26" - 30"	3'	9'	16'   10'	1:3
*30" -	4'	11'	16'   20'	1:2
1 meter   or	4'	11'	16'   16'	1:3
*1 meter	6'	12'	20'   20'	1:2
- 3 meter				

\* = Greater Than.

(2) Diving boards shall be prohibited in all pools in existence prior to the effective date of this Subpart that do not meet the criteria in paragraph (1) of this subdivision except one meter boards used only for competitive use and training and/or used in physical education instruction at schools. Such one meter diving boards must meet criteria in Columns 2, 3 and 4 for 26"-30" boards listed in paragraph (1) of this subdivision.

(3) Swimming pools equipped with diving boards after the effective date of this Subpart must meet the criteria reflected in Table 1 of section 6-1.29 of this Subpart.

(4) Head first diving from the pool deck is prohibited in water depths less than eight feet except during competitive swimming or swimmer training activities.

**6-1.11 Treatment.** All swimming pools shall be equipped with a recirculation system which includes filtration and disinfection facilities to provide water quality consistent with the bacteriological, chemical and physical standards required in section 6-1.19 of this Subpart.

(a) Turnover rate. The entire volume of pool water must be recirculated and treated in six hours. Pools constructed prior to March 31, 1973 may have an eight-hour turnover rate. Pools with approved design rate of less than six hours shall be operated at the design rate.

(b) Filtration.

(1) Sand filters.

(i) Gravity and pressure-type sand filters shall be operated at a filter rate not to exceed three gallons per minute per square foot (gpm/sf). High-rate

sand filters (pressure or vacuum) can be operated at a filter rate up to 15 gpm/sf.

(ii) Filter air release valves shall be opened daily, or more frequently if necessary to remove air which collects in the filters.

(iii) Sand filters shall be backwashed at a flow rate of 12 to 15 gpm/sf or at the design rate recommended by the manufacturer.

(2) Diatomaceous earth filters. (i) Diatomaceous earth filters shall be properly maintained and operated according to the manufacturer's instructions and at a filter rate not to exceed two gpm/sf with body feed or 1.5 gpm/sf without body feed.

(ii) Diatomaceous earth filter backwash water must discharge to the sewer system through a separation tank. The separation tank sludge shall be disposed of or treated as a solid waste material in accordance with local and State laws, rules and regulations.

(3) Cartridge filters. (i) Cartridge filters shall be operated at a filter rate not to exceed the design rate or a maximum of 0.375 gpm/sf.

(ii) Cleaning of cartridge filters must be in accordance with the manufacturer's recommendations. One complete spare set of cartridges shall be available at all times to facilitate cleaning.

(4) Flow measurement. All flow meters shall be maintained in accordance with provisions in section 6-1.29, item 9.8, of this Subpart.

(c) Disinfection. (1) Disinfection with chlorine. When chlorine gas, calcium hypochlorite or sodium hypochlorite is used to disinfect a swimming pool and the pool water pH is less than or equal to 7.8, the dose of chlorine or chlorine compound shall be sufficient to maintain a concentration of at least 0.6 mg/l free chlorine throughout the swimming pool. When the pH is between 7.8 and 8.2, a concentration of at least 1.5 mg/l free chlorine residual shall be maintained. A free chlorine residual of 5.0 mg/l or a pH of 8.2 shall not be exceeded in any swimming pool during use. All chlorine solutions shall be added to the pool water by chemical feed equipment conforming with standards contained in Section 6-1.29, Item 11.1 of this Subpart.

(i) Handling of chlorine gas. When chlorine gas is used as a disinfectant, the chlorinators and any cylinders containing chlorine gas used therewith shall be housed in an enclosure separated from other equipment rooms, including the swimming pool, corridors, dressing rooms and other space used by the bathers, by a tight partition wall or by a tight partition wall with a door so installed as to prevent gas leakage and equipped with an inspection window. Chlorine cylinders shall be secured from falling and cylinders in use shall be secured on a suitable platform scale. A separate vent opening to the exterior shall be provided. An electric motor-driven fan shall take suction from near the floor level of the enclosure and discharge

at a suitable point to the exterior above the ground level. The fan switch shall be able to be operated from outside of the enclosure. All pools using chlorine gas shall be equipped with a self-contained breathing apparatus which is kept in a closed cabinet, outside of the room in which the chlorinator is maintained. The breathing apparatus shall be maintained in working order and checked monthly. Additional precautions shall be taken in the handling and storage of chlorine gas at pools as required by the permit-issuing official to safeguard public health. Any person who operates such chlorinating equipment shall be familiar with the use of self-contained breathing apparatus.

(ii) Handling of calcium hypochlorite. When calcium hypochlorite is used as a disinfectant, extreme caution must be taken in the handling and mixing of the chemical to avoid possible fire and explosion hazards. A dry, aboveground, locked storage area shall be provided. Clean inert materials shall be used, and mixing must be by pouring the chemical into water and never by pouring water into the chemical.

(2) Disinfection with bromine. When bromine is used as the disinfectant, the following shall be followed:

(i) Bromine shall be fed on a continuous basis.

(ii) The pool pH shall be maintained between 7.2 and 7.8.

(iii) A concentration of at least 1.5 mg/l bromine residual shall be maintained throughout the pool water at all times. A maximum of six mg/l bromine residual shall be permitted in any swimming pool during use.

(iv) Solid-stick or tablet-type bromine (brom-chlor-dimethyl-hydantoin) shall be used with feed equipment conforming to the standards contained in section 6-1.29, item 11.4, of this Subpart.

(3) Other disinfectants. Disinfectants other than those listed above may be used only if the State Commissioner of Health determines they are safe and effective when used in accordance with the manufacturer's directions.

(4) Use of cyanuric acid-based chlorine (or any other chlorine stabilizer) is prohibited. Pools found using or containing any cyanuric compound shall be closed, drained and refilled prior to continued use.

(5) Test kits/Testing. DPD test kits with reagents no more than one year old capable of measuring pH and chlorine or bromine residuals, shall be available at each pool. Tests shall be conducted and recorded for pH and free and total chlorine or bromine residual at the beginning, during, and at the end of each swimming period. Where required, reagents for alkalinity and hardness tests shall be available. Where ozone generating equipment is installed, ozone testing shall be conducted in accordance with section 6-1.29, Item 11.5.1.1 of this Subpart.

(d) **Chemicals.** When the permit-issuing official determines that pH is not consistently maintained within the required limits, positive feed equipment shall be used to maintain the pH at levels required in this section. The methods for addition of pool water treatment chemicals must be specified and approved in the safety plan. The method of chemical addition must protect the bather from contact with concentrated chemicals. The method must provide adequate distribution of the chemical throughout the pool and distribution must be verified by pool water testing prior to bather exposure. Only chemicals approved for water supply use by the U.S. Environmental Protection Agency, as food additives by the U.S. Food and Drug Administration, or by the State Commissioner of Health, shall be used in swimming pools. Where equipment for chemical addition is required, it shall be installed and operated in accordance with section 6-1.29, item 11.0 of this Subpart. All chemical containers, including those used with chemical feeders, must be clearly labeled regarding their contents.

**6-1.12 Water supply.** The water supply serving all plumbing fixtures, including drinking fountains, lavatories and showers, shall, after treatment, meet the applicable requirements of Part 5 of this Title.

**6-1.13 Sewage system.**

(a) All waste water from a swimming pool shall be discharged in such a manner that waste water cannot be siphoned, flooded or otherwise discharged into the pool.

(b) The sanitary sewer serving the swimming pool shall discharge to a public sewer system or other approved disposal system.

**6-1.14 Garbage; refuse.** Garbage and refuse shall be collected, handled and disposed of in a sanitary manner.

**6-1.15 Bathhouse and toilet facilities.**

(a) **General.** Toilet facilities and lavatories shall be provided at a swimming pool, except when such facilities are available within 300 feet of the pool or within one floor level above or below the swimming pool area.

(b) Walls and floors of the bathhouse shall be kept clean and free from cracks or open joints. The floors shall be well drained.

(c) All fixtures within the bathhouse shall be maintained in a clean and sanitary condition at all times.

(d) All toilet facilities and dressing rooms shall be ventilated and maintained.

(e) Showers, when provided, shall be supplied with water at a temperature of at least 90°F and no more than 110°F at a rate of at least 1.5 gallons per minute per shower head. Thermostatic, tempering or mixing valves shall be kept in good operation to prevent scalding of the users. Shower curtains shall be kept clean. Soap shall be provided.

(f) All lavatories shall be provided with soap, paper towels or electrical hand-drying units, and covered waste receptacles. Suitable sanitary napkin receptacles shall be provided in toilet facilities used by females.

#### **6-1.16 Fencing.**

(a) All swimming pools shall be enclosed within a fence or other barrier, at least four feet high, which can only be entered by bathers through self-closing and positive self-latching doors or gates. The knob or handle controlling the latch shall be at least 40 inches above grade. The gate or door shall be locked and access to pool prevented when the pool is not supervised.

(b) Swimming pool fences constructed after the effective date of this Subpart [March 30, 1988] shall meet the requirements of the Uniform Code. For existing swimming pool fences, no opening shall exceed four inches.

#### **6-1.17 Lighting and electrical requirements.**

(a) Lighting or other electrical circuits provided in the pool area must be protected by ground-fault circuit interrupters in accordance with the Uniform Code. These devices may be required at an existing pool constructed prior to March 31, 1973, when the permit-issuing official determines it is necessary to protect the safety of bathers.

(b) Defects in the electrical system, including underwater lights, overhead lights and their respective lenses, shall be immediately repaired.

(c) Portable electrical devices, such as announcing systems and radios within the reach of bathers, shall be prohibited.

(d) Windows and lighting equipment shall be adjusted to prevent glare and excessive reflection on the pool surface. Illumination levels must be maintained in accordance with provisions in section 6-1.29, item 7.0, of this Subpart.

(e) Underwater lights shall allow an observer on the pool deck to clearly see all portions of the pool, including the bottom.

(f) When underwater lighting is not provided and night swimming is permitted, surface lighting shall be adequate to allow an observer on the pool deck to clearly see the pool bottom.

(g) Operators of existing pools shall possess a certificate of electrical compliance with the Uniform Code issued by the New York Board of Fire Underwriters or equivalent certifying agency.

(h) Adequate emergency lighting shall be provided at swimming pools where night swimming is allowed and indoor pools where no natural light is present. For outdoor pools, a portable battery powered artificial light source is acceptable and

shall be adequate and maintained to facilitate swimming pool evacuation.

(i) No overhead electrical wiring shall pass within 20 feet horizontally of the swimming pool.

**6-1.18 Ventilation.** All indoor swimming pools shall be adequately ventilated, either by natural or mechanical means.

**6-1.19 Water quality.**

(a) Sample collection and analysis. Microbiological samples shall be collected from swimming pools when determined by the permit-issuing official to be necessary to evaluate water quality, and be examined in laboratories approved by the New York State Department of Health.

(b) Microbiological quality. Coliform bacteria levels should not exceed 4 per 100 milliliters in more than one sample examined each month. When the membrane filter technique is used, or when the fermentation tube method is used, coliform bacteria shall not be present in more than 10 percent of portions analyzed in any month; also, total bacteria shall not exceed 200 per milliliter.

(c) Chemical quality. (1) The chemical quality of water in the pool shall not cause irritation to the eyes or skin of the bathers or have other objectionable physiological effects on bathers

(2) The total alkalinity of the pool water shall be maintained within the range of 80 to 120 mg/l.

(3) The pool water shall be chemically balanced. The permit-issuing official may require that the operator determine the saturation index (see section 6-1.30 of this Subpart) monthly or at any other frequency required to maintain pool clarity, proper disinfection, alkalinity, and pH levels.

(d) Cleanliness. (1) The bottom and sidewalls of swimming pools shall be kept free of sediment and visible soil, and the pool water surface shall be kept free of visible floating matter.

(2) The water in a swimming pool shall be sufficiently clear to permit a white and black object four inches in diameter, placed at any location on the bottom of the swimming pool, to be clearly visible from the sides of the swimming pool at all times.

**6-1.20 Maximum permissible bather use.**

(a) The maximum number of bathers permitted in a swimming pool at one time shall not exceed the design bather capacity. This capacity is calculated based on section 6-1.29, item 3.0, of this Subpart.

(b) The pool operator shall be responsible for controlling the number of bathers so that the maximum capacity is not exceeded.

(c) A sign shall be conspicuously posted in the pool area stating:

(1) the maximum number of bathers who may use the swimming pool at one time;

(2) the hours that a swimming pool is open; and

(3) that pool use is prohibited at any other time.

#### **6-1.21 Operator and operating records.**

(a) Each swimming pool shall be maintained by a pool operator familiar with its equipment. The pool operator shall comply with the regulations in this Subpart and any conditions of the permit.

(b) All pools larger than 3,000 square feet in surface area, or pools disinfected using gas chlorine, shall be maintained by a qualified swimming pool water treatment operator within one year of the effective date of this section [March 30, 1988].

(c) Complete daily operation records shall be kept of the operation of each swimming pool on forms approved or furnished by the State Commissioner of Health. Upon completion, a copy of such records shall be maintained at the facility for 12 months. The permit-issuing official may require submission of reports at periodic intervals.

**6-1.22 Inspections.** The permit-issuing official and his designated representatives shall have the right of entrance and inspection of any swimming pool facility as authorized under section 1.11 of this Title. The most recent report of inspection shall be available at every pool.

#### **6-1.23 Supervision.**

(a) Personnel.

The requirements of this subdivision do not apply to pools described in Section 6-1.2(o) of this Subpart.

(1)(i) When a swimming pool, spa pool, or wading pool is part of a temporary residence or campground, as defined in Part 7 of this Title, the operator must provide either Supervision Level IIa, IIb, III or IV aquatic supervision. When Supervision Level III or IV is selected, on-premise CPR certified staff is not required. The temporary residence or campground operator must notify the permit-issuing official in writing of the supervision level selected and at least 15 days before making any subsequent changes to the supervision level selected for each swimming pool.



(ii) The operator of a temporary residence or campground bathing facility described in paragraph (1)(i) of this subdivision shall not allow the use of the temporary residence or campground bathing facility by persons other than registered overnight patrons of the temporary residence or campground and their guests when Supervision Level III or IV is selected.

(2) The supervision level required at each swimming pool, other than those described in paragraph 1 of this subdivision, will be determined based on the following:

(i) Supervision Level IIa or IIb is required for all white water slides, wave pools or aquatic amusements and when any of the following are present: water depth is five feet or greater; diving boards; flotation devices (other than those bearing a U.S. Coast Guard Type I-III Label); pool deck slides; surface area of the pool exceeds 2,000 square feet.

(ii) Supervision Level III is required at spa and wading pools.

(iii) Supervision Level IV is required when the water depth is less than five feet and the surface area of the pool is less than or equal to 2,000 square feet.

(3) Aquatic supervisory staff must meet the requirements of Section 6-1.31 of this Subpart or Section 6-2.20(a) of Subpart 6-2. When a facility voluntarily provides aquatic supervisory staff or a Supervision Level exceeding those required by this Section, all the requirements of this subpart relative to supervision are applicable.

(4)(i) At least one aquatic supervisory staff of at least the required Supervision Level shall be provided for each 3,400 square feet of pool surface area or fraction thereof at pools required to use Supervision Levels II-III personnel. When pools exceed 3,400 square feet of pool surface area at least one additional aquatic supervisory staff shall be provided when the number of bathers exceeds or is likely to exceed 50 percent of the pool bather capacity, based on 25 square feet of pool surface area per bather. Pool operators may limit the portions of the pool open to bathers and provide the required aquatic supervisory staff consistent with the pool area open.

(ii) Adequate aquatic staff (Level II-III) must be provided for visual surveillance of the entire pool area(s) that are open to bathing.

(5) Additional aquatic supervisory staff may be required by the permit issuing official whenever it is necessary for the protection of the pool patrons (bathers). Factors, including but not limited to, pool shape, diving board use, patron decorum, patron alcohol consumption; and, bathing facilities used primarily for the developmentally disabled may be the basis for increased coverage.

(6) The aquatic supervisory staff shall be at pool side, providing direct supervision of the pool patrons, except that of pools requiring Supervision Level IV and spa pool facilities. At spa pools the Supervision Level III

aquatic staff shall be on premises and shall provide periodic supervision as specified in the safety plan. Aquatic supervisory staff on duty shall be engaged only in activities that involve the direct supervision of bathers. When instructional activities occur and the required supervisory staff provide the instruction, additional staff meeting at least Supervision Level III must be provided when the instructional activities may be reasonably expected to distract required supervisory staff from direct supervision of all bathers.

(7) At wave pool facilities, a minimum of three aquatic staff of Supervision Level II, two of whom are in lifeguard chairs equipped with equipment that will immediately stop the wave-making machine, shall be present whenever the wave-making machine is in operation.

(8) Swimming pools required to have Supervision Level II aquatic staff shall provide a supervising lifeguard when the facility is required to provide three or more aquatic staff.

(9) The facility operator shall be responsible for verification of aquatic supervisory staff qualifications. Copies of the certificates or other documents showing possession of such qualifications shall be kept on file at the site and made available to the permit issuing official upon request.

(10) A swimming pool permitted to use Supervision Level IV, shall comply with the following pool use rules:

(i) Two or more adults, 18 years of age or older, must be present at the pool when the bathing facility is in use, with at least one adult on the pool deck.

(ii) Supervision Level IV Facility Personnel shall be on premises at all times the pool is in use and will conduct at least one visual check daily, prior to operation/use. The visual check shall confirm the pool is in compliance with the requirements of this Subpart, including safety equipment and water quality. Upon completion of these inspections, the personnel signs the log, and records the time of inspection and number of persons using the pool. A log is to be provided and maintained by the facility operator to record time of the periodic inspection(s) and other required information.

(iii) Children less than 16 years of age must at all times be accompanied by a parent or guardian or similar adult responsible for their safety and behavior while at the bathing facility.

(iv) A free telephone conveniently located must be provided at the facility with posted numbers for the nearest emergency service (police, fire department, ambulance, hospital).

(v) Required safety equipment must be provided at poolside unless otherwise specified in the safety plan.

(vi) Warning signs of a minimum 36" x 24" size with safety conditions and methods for summoning CPR certified individual, when CPR trained staff is required, must be posted. The warning sign must state:

- Two or more adults, 18 years of age or older, must be present at the pool when the bathing facility is in use, with at least one adult on the pool deck.
- Children less than 16 years of age must at all times be accompanied by an adult responsible for their safety and behavior while at the bathing facility.
- Shallow Water - No Diving (for pools with water depths less than 8 feet).
- Method of summoning on-premise CPR staff (only where CPR trained staff is required).
- Location of free telephone and numbers to contact.

(vii) The bathing facility operator shall provide to all patrons a written statement or brochure. Only patrons who have received this statement may use the bathing facility. The brochure or statement must state at least the following:

- NEVER SWIM ALONE. A minimum of two adults, 18 years of age or older, must be present whenever this swimming facility is in use.
- THERE IS NO SUBSTITUTE FOR ADEQUATE SUPERVISION. Children under 16 years of age must be accompanied to the bathing facility by a parent or guardian, (an adult who is responsible for the children and their behavior.)
- IN AN EMERGENCY, NOTIFY THE FACILITY OPERATOR AND CONTACT HELP AS SOON AS POSSIBLE. A free telephone is provided at this facility (describe location). Telephone numbers for the nearest emergency medical service are posted.
- Only use this facility during posted hours of operation.
- Don't drink alcohol and swim.

(b) Lifesaving equipment. (1) Required lifesaving equipment shall be readily accessible near the swimming pool deck at all swimming pools, and kept in good repair. Minimum equipment shall include:

(i) A first aid kit, which may be any commercially prepared 24 unit kit or a supply of band aids, bandage compresses and self adhering gauze bandages; and a pocket face mask or face shield with a one way valve to assist with CPR;

(ii) At Supervision Level IIa or IIb swimming pools; one rescue tube with an attached line for each lifeguard required by this section; one reaching pole at least 15 feet long; and a full size commercially available spine board or a spine board six feet long and a minimum sixteen inches wide provided with straps to aid in immobilization of a victim and hand holds;

(iii) At Supervision Level IV swimming pools, temporary residence swimming pools using Supervision Level III in accordance with section 6-1.23(a)(1)(ii), or homeowner swimming pools as defined in section 6-1.2(o): two U.S. Coast Guard approved ring buoys at least 18 inches in diameter fitted with a quarter inch diameter line a length of 1.5 times the maximum width of the pool or 50 feet whichever is less, and a reaching pole at least 15 feet long.

(2) Elevated lifeguard chairs shall be provided at all pools greater than 2000 square feet that utilize Supervision Level IIa or IIb aquatic supervisory staff. One elevated lifeguard chair is required for each 3,400 square feet of pool surface area or fraction thereof. The chairs shall be located so as to provide a clear, unobstructed view of the pool bottom in the pool area under surveillance and be in compliance with section 6-1.29, Item 6.2 of this Subpart.

(c) Safety plan. Operators of swimming pools must develop, update and implement a written safety plan, consisting of procedures for daily bather supervision, injury prevention; reacting to emergencies, injuries and other incidents, providing first aid and summoning help. The safety plan shall be

approved by the permit-issuing official and kept on file at the pool. Approval will be granted when all the components of this section are addressed so as to protect the health and safety of the bathers, and the plan sets forth procedures to insure compliance with this Subpart.

#### **6-1.24 General requirements.**

(a) Care of suits and towels. All bathing suits and towels furnished or rented shall be washed with a detergent in hot water, rinsed and thoroughly dried after each use.

(b) Pollution of swimming pool prohibited. Urinating, discharge of fecal matter, expectorating or blowing the nose in any swimming pool is prohibited.

(c) Posting regulations. Placards reciting the contents of subdivisions (b), (d) and (e) (where applicable), inclusive, of this section shall be posted conspicuously at the swimming pool or enclosure and in the dressing rooms and offices of all swimming pools.

(d) Deck slides.

(1) Sliding shall not occur in water less than four feet deep.

(2) Sliding shall be performed only in a feet forward position.

(e) Starting blocks. Use of starting blocks is prohibited except during competitive swimming or swimmer-training activities.

#### **6-1.25 Spa pools; additional requirements.**

(a) Spa pools shall be operated to meet the specific requirements listed in this section, in addition to other applicable sections of this Subpart.

(b) The maximum water temperature for spa pools shall not exceed 104 degrees Fahrenheit. A thermostatic control for the water shall be provided. An audible alarm system shall be installed and maintained to warn of any temperature over 104 degrees Fahrenheit.

(c) (1) The pH of water in the spa pool shall be maintained between 7.2 and 7.8, and a minimum free residual chlorine of 1.5 mg/l shall be provided. Spa pools shall be chlorinated to 10 mg/l at least once a week when the pool is not in use. A maximum of 5.0 mg/l of free chlorine residual shall be permitted during use.

(2) Where bromine is used as the disinfectant, a minimum bromine residual shall be maintained between 3 mg/l and 6 mg/l, and the pH shall be maintained between 7.2 and 7.8.

(d) Spa pools shall be drained and cleaned when needed, and at least once every two weeks.

(e) A warning sign with an area of at least three square feet, stating the six caution statements contained in section 6-1.29, item 14.13, of this Subpart, shall be conspicuously posted in the immediate vicinity of the spa pool.

**6-1.26 Special-purpose pools.** Pools for persons with physical disabilities shall provide safe entry and exit from the pool. All surfaces shall be free of sharp edges. These pools shall be operated and maintained in accordance with the requirements specified in section 6-1.29, item 15.3, of this Subpart.

**6-1.27 Movable-bottom pools.** Movable-bottom floor pools shall be operated and maintained in accordance with special requirements specified in section 6-1.29, item 15.4, of this Subpart.

**6-1.28 White-water slides.**

- (a) White-water slides shall be operated to meet the specific requirements listed below, in addition to other applicable sections of this Subpart.
- (b) Supervision shall be provided at the top and bottom of each white-water slide, as required in section 6-1.23 of this Subpart.
- (c) Use of white-water slides shall prohibit the following practices:
  - (1) Chain-riding or stopping in flumes.
  - (2) Standing or kneeling in flumes.
  - (3) Sliding shall be performed only in a feet forward position.
- (d) Warning signs shall be posted stating the above prohibitions.

**6-1.29 Swimming pool design standards.**

**1.0 Definitions.**

1.1 Swimming pool shall mean a man-made structure, together with buildings and appurtenances used in connection therewith, intended for bathing, swimming or diving purposes, made of concrete, masonry, metal or other impervious material, located either indoors or outdoors, and provided with a controlled water supply.

1.2 Spa pool shall mean a swimming pool, primarily designed for therapeutic use or relaxation, which is normally not drained, cleaned or refilled for each individual. It may include, but is not limited to, hydrojet circulation, hot water, cold water, mineral bath, air induction, bubbles or any combination thereof. Spa pools are shallow in depth and not designed for swimming or diving use.

1.3 Uniform Code shall mean the New York State Uniform Fire Prevention and Building Code, 9 NYCRR Subtitle S, Chapter I.

1.4 Adequate shall mean sufficient to accomplish the purpose for which something is intended, and to such a degree that no unreasonable risk to health or safety is presented. An item installed, maintained, designed and assembled, an activity conducted or act performed, in accordance with generally accepted standards, principles or practices applicable to a particular trade, business, occupation or profession, is adequate within the meaning of this Subpart.

**2.0 Submission of plans.**

2.1 General. All plans shall be prepared by a person licensed by the State of New York to practice engineering or architecture. All construction shall comply with the requirements of the Uniform Code. It is desirable that preliminary plans, specifications and an engineer's design report be submitted for review prior to the preparation of final plans. Plans, specifications and reports submitted for formal approval must contain sufficient information to demonstrate to the reviewing authority that the proposed swimming pool, or improvements thereto, will meet the standards contained herein and shall include, but not be limited to, those factors hereinafter set forth in items 2.2.1 through 2.2.7, inclusive.

## 2.2 Basis of design report.

2.2.1 Swimming pool perimeter, area and volume.

2.2.2 Flow rate, turnover and filtration rate.

2.2.3 Anticipated swimmer load (maximum and average).

2.2.4 Source, quality, quantity available and characteristics of water supply, including alkalinity, pH, iron and manganese.

2.2.5 Detailed description of filtration, recirculation equipment and chemical feed equipment.

2.2.6 Hydraulic computations including head loss in all piping and recirculation equipment.

2.2.7 Pump curves, showing that the proposed recirculation pump can adequately pump proposed flows.

## 2.3 Plans and specifications.

### 2.3.1 General layout plan.

2.3.1.1 Name and address of the proposed facility and the name and address of the owner.

2.3.1.2 Scale, north point and direction of prevailing wind.

2.3.1.3 Date, address, name, professional seal and signature of the designing engineer or architect.

2.3.1.4 A plot plan of the property to be used, indicating the topography, the arrangement and location of present and proposed structures, and the location of present and proposed swimming pool.

2.3.2 Detailed plans. All detailed plans shall be drawn to a suitable scale and include the following information:

2.3.2.1 Complete construction details, including dimensions, elevations and appropriate cross-sections.

2.3.2.2 Schematic diagrams and plan and elevation views of the pool water treatment and recirculation system.

2.3.2.3 Size and location of all piping, including elevations.

2.3.3 Specifications. Complete, detailed specifications for the construction of the swimming pool, bathhouse, recirculation system, filtration facilities, disinfection equipment and all other appurtenances shown on detailed plans shall be submitted.

### **3.0 Patron use.**

3.1 Designation of areas. For purposes of computing patron use within the pool enclosure, those portions of the swimming pool five feet or less in depth shall be designated the "shallow area." Those portions of the swimming pool over five feet in depth shall be designated the "deep area."

3.2 Design bather capacity.

3.2.1 Shallow area. Fifteen square feet of pool water surface area shall be provided for each patron.

3.2.2 Deep area. Twenty-five square feet of pool water surface area shall be provided for each patron.

3.2.3 Diving area. Three hundred square feet of pool water surface area shall be reserved around each diving board or diving platform, and this area shall not be included in computing the permissible patron use.

3.2.4 Spa pools. Ten square feet per person shall be provided for each patron.

3.3 Excess deck allowance. Additional allowance will be made on the basis of one additional patron allowed per each 50 square feet of pool deck in excess of the minimum area of deck required in item 5.9 of this section.

### **4.0 Construction material.**

4.1 Materials. Swimming pools shall be constructed of materials which are inert, stable, nontoxic, watertight and enduring. Sand or earth bottoms or unlined wooden tubs are not permitted.

4.2 Corners. All corners formed by intersection of pool walls and floor shall be rounded.

4.3 Finish. Pool bottom and sides must be white or a light color with a smooth and easily cleanable surface.

**5.0 Design, detail and structural stability.** All swimming pools shall be designed and constructed to withstand all anticipated loading for both full and empty conditions. A hydrostatic relief valve and/or a suitable underdrain system shall be provided. The designing architect or engineer shall be responsible for certifying the structural stability and safety of the pool during full and empty conditions.



5.1 Shape. The shape of any swimming pool shall be such that the circulation of pool water and control of swimmers' safety are not impaired. There shall be no underwater or overhead projections or obstructions which would endanger patron safety or interfere with pool operation.

5.2 Minimum depth. The minimum depth of water in the pool shall be three feet, except for special-purpose and wading pools.

5.3 Bottom slope. The bottom of the pool shall slope toward the main drain. The slope in water depths less than five feet shall not exceed 1 foot vertical to 12 feet horizontal.

5.4 Area marked. The boundary line between the shallow and deep areas shall be marked with a four-inch stripe of contrasting color on the floor and walls of the pool, and by a safety rope and floats equipped with float keepers. Ledges and step edges shall also be marked with a four-inch stripe of contrasting color.

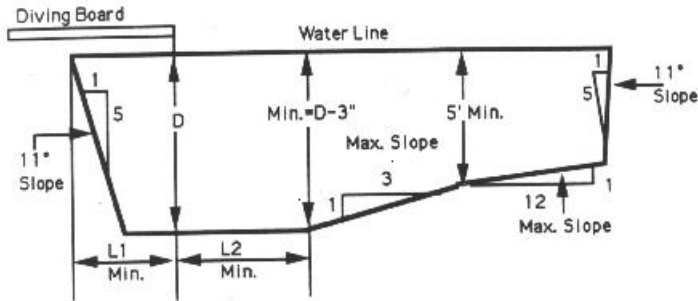
5.5 Pool walls. Walls of a swimming pool shall be either: (1) vertical for a distance of at least six feet; or (2) vertical for a distance of at least three feet below the water level; below which the wall may be curved to the bottom with a radius not greater than the difference between the depth at that point and three feet; provided that vertical is interpreted to permit slopes not greater than one foot horizontal for each five feet of depth of sidewall (11 degrees from vertical).

5.5.1 Ledges. Ledges shall not extend into the pool unless they are essential for support of the upper wall construction.

5.6 Diving areas. The minimum dimensions of the swimming pool and appurtenances in the diving area shall conform to Table 1 of this section. Pools designed for competitive diving can upon application utilize nationally recognized competitive design standards.

TABLE 1

## MINIMUM DIMENSIONS FOR POOLS WITH DIVING EQUIPMENT



Note: Minimum depth of five feet must be maintained when a wall terminates pool area opposite diving boards. Otherwise, the specified shallow area floor slope may be used to shallow end.

## Minimum Dimensions

Max. board height over water	Max. diving board length	D	L(1)	Pool L(2)	width
26"(2/3 meter)	10'	8'6"	2'6"	10'0"	20'0"
30"(3/4 meter)	12'	9'0"	3'0"	10'0"	20'0"
1 meter	16'	11'0"	4'0"	20'0"	20'0"
3 meters	16'	12'0"	6'0"	20'0"	24'0"

Placement of boards shall observe the following minimum dimensions. With multiple-board installations, minimum pool widths must be increased accordingly.

- 1 meter or less--Board to pool side 10'0"
- 3 meters--Board to pool side 12'0"
- Distance between adjacent boards 10'0"

5.6.1 Headroom. There shall be a completely unobstructed clear distance of 16 feet above the diving board, measured from the center of the front end of the board. This area shall extend at least eight feet behind, eight feet to each side, and 16 feet ahead of the measuring point.

5.6.2 Diving boards and platforms. The use of diving boards and platforms in excess of three meters in height must be based on a design that adequately addresses the special safety considerations associated with such devices.

5.6.3 Steps and guardrails for diving boards. Supports, platforms and steps

for diving boards shall be of substantial construction and of sufficient structural strength to safely carry the maximum anticipated loads. Steps shall be of corrosion-resistant material, easily cleanable and of nonslip design. Handrails shall be provided at all steps and ladders leading to diving boards one meter or more above the water. The guardrails shall be 30 inches high, extending at least to the edge of the water.

5.7 Deck slides. All swimming pool slides, which may be installed at a swimming pool, shall be labeled to show compliance with the requirements of the U.S. Consumer Product Safety Commission or other generally acceptable standards that will provide adequate protection for public health and safety.

5.7.1 Depth. The bottom of any slide must discharge into a minimum water depth of four feet.

5.8 Ladders, recessed steps and stairs.

5.8.1 Location. Recessed steps, ladders or stairs shall be provided at the shallow and deep ends. Recessed steps or ladders shall be provided in the deep portion. If the pool is over 30 feet wide, such steps, ladders or stairs shall be installed on each side.

5.8.2 Ladders. Pool ladders shall be corrosion-resistant and shall be equipped with nonslip treads. All ladders shall be so designed as to provide a handhold. There shall be a clearance of not more than six inches nor less than three inches between any ladder and the pool wall.

5.8.3 Recessed steps. Recessed steps shall be readily cleanable and shall be arranged to drain into the pool. Recessed steps shall have a minimum tread of 5 inches and a minimum width of 14 inches.

5.8.4 Handrails. Where recessed steps or ladders are provided, there shall be a handrail at the top of each side thereof extending over the coping or edge of the deck.

5.8.5 Stairs. Where stairs are provided, they shall be located diagonally in a corner of the pool or be recessed. They shall be equipped with a handrail. Stairs shall be of nonslip design, have a minimum tread of 12 inches and a maximum rise of 10 inches.

5.9 Decks. A continuous clear deck shall surround the entire pool perimeter. It shall be not less than five feet wide. The deck shall be of a uniform, easily cleaned, impervious material and be protected from surface runoff. Where diving boards or slides are installed, a clear deck of not less than five feet shall be provided behind the diving boards or slides.

5.9.1 Slope. The deck shall be sloped at least one-fourth inch per foot to deck drains or grades.

5.9.2 Drainage. Deck drains, when used, shall be spaced and arranged so that not more than 400 square feet of area is tributary to each drain, and drains shall not be spaced more than 25 feet apart. There shall be no direct connection between the pool deck drains and the sanitary sewer system, or

the pool gutter or recirculation system.

5.9.3 Roll-out gutters. If the pool is equipped with roll-out deck level gutters, not more than five feet of deck shall be sloped toward the gutters.

5.9.4 Carpeting. Carpeting shall not be permitted on pool decks unless the carpet contains a label indicating it complies with the National Sanitation Foundation Standards or other standards that will provide adequate protection for public health and safety.

5.9.5 Hose bibbs. Hose bibbs shall be provided to facilitate flushing of the deck areas and shall be provided with antisiphonage devices.

5.9.6 Spectator areas. There shall be an effective separation between spectator areas and swimmer areas.

5.9.7 Food concessions. There shall be a separation between areas where food and drink are served and areas used by pool patrons.

5.10 Fencing. All swimming pools, including wading pools, shall be provided with an enclosure which shall comply with the following:

5.10.1 Shall be at least four feet in height and have a maximum vertical clearance to grade of two inches.

5.10.2 Where a picket-type fence is provided, horizontal openings between pickets shall not exceed 4 inches.

5.10.3 Where a chain-link fence is provided, the openings between links shall not exceed 2-3/8 inches.

5.10.4 Enclosure shall be constructed so as not to provide footholds.

5.10.5 Pickets and chain-link twists shall extend above the upper horizontal bar.

5.10.6 Such enclosure shall have railings and posts within the enclosure, which shall be capable of resisting a minimum lateral load of 150 pounds applied midway between posts and at top of posts, respectively. Enclosures, fence material or fabric shall be capable of withstanding a concentrated lateral load of 50 pounds applied anywhere between supports on an area 12 inches square, without failure or permanent deformation. Gates provided in the enclosure shall be self-closing and self-latching, with the latch handle located within the enclosure and at least 40 inches above grade.

5.10.7 A wall of a multiple dwelling is permitted to serve as part of the enclosure, provided that there is no direct access from the dwelling to the pool.

## **6.0 Safety requirements.**

### 6.1 Depth markings.

6.1.1 Location of depth markings. Depth of water shall be plainly marked at or above the water surface on the vertical pool wall and/or on the edge of the deck at maximum and minimum points and at break between the deep and shallow portions, and at intermediate two-foot increments of depth, spaced at not more than 25-foot intervals. Markings shall be on both sides and ends of the pool. Where depth markings cannot be placed on the vertical walls above the water level, other means shall be used so that the markings will be plainly visible to persons in the pool. Water depth shall be measured at a point three feet from the pool wall.

6.1.2 Size of depth markings. Depth markings shall be in numerals of four-inch minimum height, followed by the words "foot depth" or "feet deep," and with color contrasting with background. Depth markers must be of durable material and permanently installed.

6.2 Lifeguard chairs. Elevated lifeguard chairs shall be provided at all pools having an area greater than 2,000 square feet that provide Supervision Level IIa or IIb aquatic supervisory staff. One elevated lifeguard chair is required for each 3,400 square feet of pool surface area or fraction thereof. Chairs should be placed in locations which will eliminate sun glare on the water, and in positions which will give complete coverage of the pool area under surveillance.

6.3 Lifesaving equipment. Lifesaving equipment shall be provided as required in section 6-1.23(b) of this Subpart.

6.4 First aid room. Swimming pools with a surface area in excess of 4,000 square feet shall have a readily accessible room or area designated and equipped for emergency care.

6.5 Emergency exit. An emergency exit from the pool room shall be provided. All exits should be clearly marked.

## 7.0 Lighting, electrical, ventilation requirements.

7.1 Lighting. Artificial lighting shall be provided at all swimming pools which are to be used at night, or which do not have adequate natural lighting, so that all portions of the pool, including the bottom, may be readily seen without glare.

7.1.1 Water surface. Overhead illumination on the water surface shall be a minimum of 30 foot-candles when underwater lighting as specified in item 7.1.2 is provided. Without underwater lighting, a minimum illumination of 50 foot-candles on the water surface shall be provided.

7.1.2 Underwater. When underwater lighting is used, not less than 0.5 watt per square foot of swimming pool water surface shall be provided.

7.1.3 Decks. A minimum of 50 foot-candles should be provided at deck level of competition pools.

7.1.4 Emergency lighting. All indoor pools where night swimming is permitted, and indoor pools where no natural light is present shall be provided with an adequate emergency lighting service. For outdoor pools, a portable battery-powered light source is acceptable and shall be adequate and maintained to facilitate swimming pool evacuation.

7.1.5 Equipment rooms. All swimming pool equipment and chemical storage rooms shall be provided with artificial lighting sufficient to illuminate all equipment and supplies.

## 7.2 Electrical.

7.2.1 Wiring shall conform to the Uniform Code and the requirements of the appropriate regulatory agency. A certificate shall be submitted for all new electrical work.

7.2.1.1 Overhead clearance. No electrical wiring shall pass overhead within a 20-foot horizontal distance of the pool.

7.2.2 Electrical receptacles. Ground-fault circuit interrupters shall be provided on all pools, for all lighting and other electrical circuits in the area of the pool. These devices may be required in an existing pool, when the permit-issuing official determines it is necessary to protect the safety of bathers.

7.2.3 Grounding. Each underwater light shall be individually grounded by means of an adequate ground-wire screwed or bolted connection to the metal junction box from which the branch circuit to the individual light proceeds. Such junction boxes shall not be located in the swimming pool deck within four feet of the pool wall.

## 7.3 Ventilation.

7.3.1 Room ventilation. Bathhouses, mechanical equipment rooms, storage areas and indoor swimming pool enclosures shall be ventilated, either by natural or mechanical means. Room ventilation shall prevent direct drafts on swimmers and shall minimize condensation. A minimum of two air changes per hour shall be provided for indoor pool areas. A heating unit shall be kept from contact with swimmers. Fuel-burning heating equipment shall be installed and vented to the outdoors in accordance with the Uniform Code.

## 8.0 Water supply and wastewater disposal.

8.1 Water supply. The source and quality of the water supplied to the pool and all plumbing fixtures, including drinking fountains, lavatories and showers, shall after treatment meet the applicable requirements of Part 5 of the State Sanitary Code (10 NYCRR Part 5) for potable water.

8.2 Cross-connection control. All portions of the water distribution system serving the swimming pool and auxiliary facilities shall be protected against backflow and back-siphonage. Water introduced into the pool, either directly or to the recirculation system, shall be supplied through an air gap or by another method

which will prevent backflow and back-siphonage.

**8.3 Fill spout.** When a fill spout is used to introduce water into the swimming pool, it shall be shielded so as not to create a hazard. The open end of the fill spout shall have no sharp edges, shall not protrude more than two inches beyond the edge of the pool and shall be at least six inches above the deck level. If the swimming pool is equipped with a diving board, consideration shall be given to locating the fill spout under the diving board.

**8.4 Sanitary wastes.** Sanitary sewage shall be disposed of through a municipal sanitary sewerage system. If a private subsurface disposal system or other system must be used, approval of the system must be obtained from the appropriate regulatory agency.

**8.5 Pool waste water.** Pool waste water shall be discharged to the sewer system or storm drain through a suitable air gap so as to preclude the possibility of backup of sewage or waste water into the swimming pool piping system. Approval of the system must be obtained from the appropriate regulatory agency.

**8.6 Drinking fountains.** Drinking fountains shall be of slanting jet-type with a surrounding guard and nonsubmersible opening. They shall be located at a convenient point and be supplied with adequate water pressure.

**9.0 Recirculation systems and equipment.** A recirculation system consisting of pumps, piping, filters, water conditioning and disinfection equipment, and other accessory equipment, shall be provided which will clarify, chemically balance and disinfect the swimming pool water. A minimum turnover of the entire volume in six hours (four times in 24 hours) is required, except that the recirculation rate shall be increased to provide a two-hour turnover for wading pools, and as set forth in item 15.0 of this section for special-purpose pools.

**9.1 Equipment approval.** Equipment used or proposed for use in swimming pools shall be of proven design and construction and be tested as follows: (1) tested and listed by the National Sanitation Foundation (NSF) or another testing laboratory under standards promulgated by NSF; or (2) use-tested in New York or another state in at least 10 pools of comparable design for a period of at least 60 days, with engineering reports on results of use submitted; or (3) pilot-plant testing of at least 90 days, with formal submission of an operational report prepared by the design engineer or architect; or (4) a combination of use and testing or a trial use period approved by the permit-issuing official and the State Commissioner of Health.

## **9.2 Piping.**

**9.2.1 Materials.** The recirculating piping and fittings shall be of nontoxic material, resistant to corrosion, and able to withstand operating pressures. Acceptable materials for pool recirculation systems are plastic, copper, stainless steel, asbestos cement, aluminum, cast iron or other material suitable for water supply use.

**9.2.2 Velocities.** The pipes, fittings and valves of the pool recirculation

system shall be sized so that velocities do not exceed 6 feet per second under suction, 10 feet per second under pressure and 3 feet per second in gravity flow.

**9.3 Drainage and installation.** All equipment and piping shall be designed and fabricated to drain completely by use of drain plugs, drain valves or other means.

All piping shall be supported continuously or at sufficiently close intervals to prevent sagging. All suction piping shall be sloped in one direction, preferably toward the pump. All supply and return pipelines to the pool shall be provided with insertable plugs or valves to allow the piping to be drained to a point below the frost line. Provision shall be made for expansion and contraction of pipes.

**9.4 Color coding.** All exposed piping should be color-coded in accordance with the following table:

<b>PIPING</b>	<b>COLOR CODE</b>	<b>WASTE LINES</b>	<b>COLOR CODE</b>
Potable water lines	Dark blue	Backwash waste	Dark brown
Filtered water	Aqua	Sewer (sewer or other)	Dark gray
Skimmer or gutter return	Olive green	Deck drains	Light brown
Main drain	Black		
Alum	Orange	Other	
Chlorine (gas/solution)	Yellow	Compressed air	Dark green
Soda ash	White	Gas	Red
Acid	Pink		

Where two colors do not have sufficient contrast to easily differentiate between them, a six-inch band of contrasting color should be painted on one pipe at approximately 30-inch intervals. The name of the liquid or gas, and arrows indicating direction of flow, should be shown on the pipe.

**9.5 Overflow systems.** All pools shall be designed to provide continuous skimming (removal of surface water). Make-up water supply equipment shall be provided to maintain continuous skimming.

**9.5.1 Gutters (perimeter overflow systems).** The overflow shall extend completely around the pool. It shall be level within a tolerance of plus or minus one-eighth inch. Piping connections shall be provided to permit water to flow from overflows to the recirculation system.

**9.5.1.1 Size and shape.** The gutter system shall be designed for continuous removal of water from the pool's upper surface at a rate of at least 100 percent of the recirculation rate. The gutter shall be designed to serve as a handgrip and to prevent entrapment of arms and legs. It shall permit ready inspection, cleaning and repair.

**9.5.1.2 Outlets.** Drop boxes, converters, return piping or flumes used to convey water from the gutter shall be designed to handle 100 percent of the recirculation rate. Drainage shall be sufficient to minimize flooding and prevent backflow of skimmed water into the pool.

**9.5.1.3 Surge capacity.** All overflow systems shall be designed with an effective surge capacity of not less than one gallon for each square foot of pool surface area. Surge shall be provided within a surge tank, in the



gutter or filter above the normal flow line, or elsewhere in the system. Surge tanks, gutters and filter tanks should have overflow pipes to convey excess water to waste. Surge tanks shall be provided with means for complete draining.

9.5.2 Skimmers. The use of skimmers shall be limited to pools with widths of 30 feet or less and a water surface area less than 1,600 square feet.

9.5.2.1 Number. In pools where skimmers are used, one skimmer for each 400 square feet of surface area or fraction thereof shall be provided. Additional skimmers may be required to achieve effective skimming.

9.5.2.2 Location. Skimmers shall be so located as to provide effective skimming of the entire water surface with minimum interference and short-circuiting.

9.5.2.3 Flow rate. Skimmers shall be designed for a flow-through rate of at least 30 gallons per minute or 3.75 gallons per minute per lineal inch of weir. The swimming pool recirculation rate is determined by the total of: design flow rate required by the number of skimmers, and the flow through the main drain system, as specified in Item 9.6.4, and must supply the minimum turnover rate required by Item 9.0.

9.5.2.4 Control. Skimmers shall have weirs that adjust automatically and operate freely and continuously with variations of at least four inches in water level. All skimmed water shall pass through an easily removable and cleanable basket or screen before encountering control valves or entering the pump suction line. Each skimmer shall be equipped with a device to control flow. Skimmers shall include a device to prevent an air lock in the suction line. If equalizer pipes are used, they shall pass an adequate amount of water to meet pump suction requirements should pool water drop below the weir level. The equalizer pipes shall be located at least one foot below the lowest overflow level of the skimmer. A valve or equivalent device that will remain tightly closed under normal operating conditions, but automatically open when the water level drops below the minimum operating level of the skimmer, shall be provided on each equalizer pipe.

9.5.2.5 Construction. Skimmers shall be installed in the pool walls, be sturdy and be constructed of corrosion-resistant materials. Surface skimmers shall be of a type the permit-issuing official determines as adequate and suitable for such purpose.

9.5.2.6 Handgrips. Bull-nosed coping not more than two inches thick or other handgrip adjacent to the pool wall shall be provided. The handgrip shall not be more than nine inches above the minimum skimmer operating level. When the handgrip is formed by the pool deck, it shall slope away from the pool with a one-inch drop in a one-foot distance.

9.5.3 Testing. Flotation testing should be performed to determine and adjust the recirculation system for optimum skimming.

9.6 Main drain system. Two main drain suction outlets shall be installed in the

pool floor at the deepest point with a separation distance of three feet or more provided. If the floor of a spa pool is insufficient for a separation distance of three feet, then the separation distance shall be as great as possible. The suction outlets shall be connected to a single main suction pipe by branch lines and the branch lines shall not be valved so as to be capable of operating independently.

9.6.1 Spacing. The drains shall not be greater than 20 feet on centers and the drain outlets shall be provided not more than 15 feet from each side wall.

9.6.2 Grating. The main drain suction outlet shall be protected by antivortex covers or gratings. The open area shall be large enough to assure velocity shall does not exceed 1-1/2 feet per second through the grating. Openings in the grates shall not be over one-half inch wide. Gratings or drain covers shall not be removable without the use of tools.

9.6.3 Piping. The branch pipe from each main drain suction outlet shall be designed to carry 100 percent of the recirculation rate. The suction velocity in the pipe shall not exceed six feet per second. The single main suction pipe to the pump shall be equipped with a valve to control total main drain flow.

9.6.4 Minimum flow. At least 30 percent of the total recirculation rate should flow through the main drain.

## 9.7 Pumps and strainers.

9.7.1 Strainers. Strainers shall be provided through which all water shall pass before entering the pump. The strainers shall be of rigid construction, fabricated of corrosion-resistant material and sufficiently strong to prevent collapsing when clogged. The openings shall be no greater than one-eighth inch in any dimension. The total clear area of all openings shall be at least four times the area of the connecting pipe. The strainer shall have a quick-opening cover. Spare strainer baskets shall be provided. In systems where the filter is located on the suction side of the pump, strainers are not required.

9.7.2 Pumping equipment. The recirculation pump shall have adequate capacity to meet the design requirements of the pool, including filter backwashing. It shall be of a self-priming type if installed above the hydraulic gradient. A gauge which indicates both pressure and vacuum shall be installed on the pump suction header and a pressure gauge shall be installed on the discharge side of the pump.

## 9.8 Flow measurement and control.

9.8.1 Flow measurement. A means of continuously measuring rate of flow shall be provided in the recirculation system. For sand filters, the flow-measuring equipment shall be located where the backwash flow rate can also be determined. The indicator shall be capable of measuring at least 1-1/2 times the design flow rate and shall be accurate within 10 percent of true flow. The indicator shall have a range of readings appropriate for the

anticipated flow rates, and be installed where it is readily accessible for reading and maintenance, and with straight pipe upstream and downstream of any fitting or restriction in accordance with the manufacturer's recommendation.

**9.8.2 Flow regulation.** An automatic device for regulating the rate of flow shall be provided in the recirculation pump discharge piping. Where multiple pumps or filters are provided, each unit shall have a flow-regulating device installed.

## **9.9 Inlets.**

**9.9.1 Number.** Wall inlets shall be spaced not over 20 feet apart, with one inlet within five feet of each corner of the pool and one in each recessed step area.

**9.9.2 Location.** Wall inlets shall be located at least 12 inches below the design water surface. Bottom inlets shall be uniformly spaced with a separation distance of no greater than 20 feet and with rows of inlets within 15 feet of each side wall. In any pool over 60 feet in width, bottom inlets should be provided. These must be flush with the floor.

**9.9.3 Type.** Inlet fittings shall be of the adjustable rate-of-flow type. Directional flow inlets shall be used with skimmer-type pools. Inlets shall not extend from the floor or wall to create a hazard.

**9.9.4 Testing.** Dye testing (crystal violet or equivalent) should be performed to determine and adjust the recirculation pattern.

**10.0 Filtration (general).** A swimming pool water treatment system shall have one or more filters. It shall be installed with adequate clearance and facilities for ready and safe inspection, maintenance, disassembly and repair.

**10.1 Sand filters.** The design filtration rate of rapid sand filters shall not exceed three gallons per minute per square foot of filter area. High-rate sand filters (pressure or vacuum) shall not exceed a filtration rate of 15 gallons per minute per square foot of filter area. For multiple-cell rapid sand filters, the rate of filtration shall not exceed 3 gpm per square foot of filter area. For multi-cell high-rate sand filters, filtration rate shall not exceed 5 gpm per square foot of filter area. The sand filter system shall be equipped to backwash each filter at a rate of 12 to 15 gallons per minute per square foot of filter bed area, or as recommended by the manufacturer. The backwash water shall be discharged to waste through a suitable air gap.

**10.1.1 Filter media.** Sand or other media shall be carefully graded and meet the manufacturer's recommendation for pool use.

**10.1.2 Accessories** shall include influent pressure gauge, effluent pressure gauge, backwash sight glass and air relief valve.

**10.2 Diatomaceous earth.** The design filtration rate for pressure or vacuum filters shall be no greater than 1.5 gallons per minute per square foot of effective filter area, except that a maximum filtration rate of 2.0 gallons per minute per square

foot may be allowed where continuous "body feed" is provided. The filter and all component parts shall be of such materials, design and construction to withstand normal continuous use without significant deformation, deterioration, corrosion or wear which could adversely affect filter operation.

10.2.1 Precoating. The filter piping shall be designed to refilter or waste the effluent until a uniform body coat is applied. For pressure-type filters, precoat feed equipment shall be provided to apply not less than 0.1 pound of diatomaceous earth per square foot of filter area.

10.2.2 Body feed equipment. Body feed equipment capable of applying not less than 0.1 pound of diatomaceous earth per square foot of filter area per 24 hours should be provided.

10.2.3 Regenerative-type filters. Regenerative type of filters shall meet the same standards as pressure filters. Pumping by air or manual means must be provided for, and provision for visual inspection of elements shall be provided.

10.2.4 Accessories. Accessories for vacuum filters shall include a vacuum gauge and a vacuum limit switch interconnected with the pump. Pressure filters require a backwash sight glass, effluent pressure gauge, influent pressure gauge and air relief valve.

10.2.5 Backwash. Diatomaceous earth filter backwash water must discharge to the sewer system through a separation tank. The separation tank sludge shall be disposed of in an approved solid waste disposal facility.

10.3 Cartridge filters: filter rate. The design filtration rate for cartridge filters shall not exceed 0.375 gallon per minute per square foot of filter media.

10.3.1 Cartridges. A complete extra set of filter cartridges must be on hand at user's location.

10.3.2 Accessories shall include influent pressure gauge, effluent pressure gauge and air relief valve.

**11.0 Disinfection.** Swimming pools shall be designed to provide for continuous disinfection of the pool water with a chemical which is an effective disinfectant and which imparts an easily measured, active residual.

11.1 Disinfectant feeders. An automatic feeder which is easily adjustable shall be provided for the application of disinfectant.

11.1.1 Construction. Feeders shall be of sturdy construction and materials which will withstand wear, corrosion or attack by disinfectant solutions or vapors, and which are not adversely affected by repeated, regular adjustments or other normal use conditions.

11.1.2 Maintenance. Feeders shall be capable of being easily disassembled for cleaning and maintenance.

11.1.3 Operation. The design and construction shall minimize stoppage from

chemicals intended to be used or foreign materials that may be contained therein.

11.1.4 Safeguards. The feeders shall incorporate antisiphon safeguards so that the disinfectant cannot continue to feed into the swimming pool, the pool piping system or the swimming pool enclosure if any type of failure of the pool equipment occurs.

11.1.5 Capacity. Feeders shall be capable of supplying disinfectant to the pool in the range up to 10 mg/1 chlorine or equivalent.

11.2 Gas chlorination. When compressed chlorine gas is used, the following features shall be provided. Gas chlorine should not be used at pools in densely populated areas.

11.2.1 Location. The chlorinator room shall be located on the opposite side of the pool from the direction of the prevailing winds. Chlorine storage and chlorinating equipment shall be in a separate room. This room shall be at or above grade.

11.2.2 Venting. The chlorine room shall have a ventilating fan with an airtight duct beginning near the floor and terminating at a safe point of discharge to the out-of-doors. A louvered air intake shall be provided near the ceiling. The ventilating fan shall provide one air change per minute and operate from a switch located outside the door.

11.2.3 Door. The door of the chlorinator room shall not open to the swimming pool, and shall open outward directly to the exterior of the building. The door shall be provided with a shatterproof inspection window and should be provided with "panic hardware."

11.2.4 Chlorine cylinders. Chlorine cylinders shall be anchored. The cylinders in use shall stand on a scale capable of indicating gross weight with one-half pound accuracy. Storage space shall be provided so that chlorine cylinders are not subjected to direct sunlight. Storage space shall be in an area inaccessible to the general public.

11.2.5 Injection location. Mixing of chlorine gas and water shall occur in the chlorine room, except where vacuum-type chlorinators are used.

11.2.6 Backflow. The chlorinators shall be designed to prevent the backflow of water or moisture into the chlorine gas cylinder.

11.2.7 Breathing apparatus. A self-contained breathing apparatus designed for use in a chlorine atmosphere (and of a type approved by the appropriate regulatory agency) shall be provided. A closed cabinet shall be provided to house the breathing apparatus. It shall be located outside of the chlorinator room.

11.2.8 Leak detection. A plastic bottle of ammonia for leak detection shall be provided.

11.3 Hypochlorinators. Where hypochlorinators are used, the following

requirements shall apply:

11.3.1 Feed. Feed shall be continuous under all conditions of pressure in the recirculation system without constriction of the recirculation pump suction.

11.3.2 Solution tanks. If calcium hypochlorite is used, two solution tanks, each with minimum capacity of one-day supply, should be provided. All chemical containers, including those used with chemical feeders, must be clearly labeled regarding their contents.

11.4 Disinfection with bromine. Where bromine is used as a disinfectant, the permit-issuing official shall first approve use of solid stick-type bromine and the equipment provided for feeding on a continuous basis.

11.5 Chemical feed equipment. Equipment and piping used to apply chemicals to the water shall be of such size, design and material that they may be cleaned. All material used for such equipment and piping shall be resistant to action of chemicals to be used therein.

11.5.1 Ozone generating equipment (OGE) is acceptable only as a supplement to a chlorine or bromine disinfection system. When OGE is installed, the following design performance standards must be met:

11.5.1.1 Ozone concentration in the pool water shall not exceed 0.1 mg/l. Off-gassing of ozone shall not result in ozone levels in the equipment room or in the pool area exceeding 0.1 ppm. At the time the OGE is installed and annually thereafter the air space within 6 inches of the pool water level and air in the equipment room shall be tested to determine compliance with this requirement.

11.5.1.2 All corona discharge OGEs must be vacuum systems.

11.5.1.3 Backflow of pool water into the OGE shall not occur.

11.6 pH adjustment. Mechanical feed equipment for the purpose of adding a chemical for pH adjustment shall be provided, except where pH can be maintained within the required limits without the use of positive feed equipment. The methods for addition of chemicals must be specified in the safety plan. The method of chemical addition must protect the bather from contact with concentrated chemicals. The method must provide adequate distribution of the chemical throughout the pool and distribution must be verified by pool water testing prior to bather exposure.

11.6.1. Where carbon dioxide (CO<sub>2</sub>) is used as a method of pH control, the following features shall be provided:

11.6.1.1 CO<sub>2</sub> shall be injected into the recirculation pipe at the same point where pH adjustment solutions (i.e., acid) would normally be added. The recirculation pipe shall be of sufficient size and length to provide a minimum of five seconds contact time prior to bather contact.

11.6.1.2 CO<sub>2</sub> cylinders shall be anchored to prevent damage. Cylinders shall be inaccessible to the general public.

11.6.1.3 The manufacturer's instructions shall be followed for installation and operation of cylinders. The units shall be operated by the designated persons listed in the safety plan.

11.6.1.4 CO<sub>2</sub> cylinders should be stored in a protective enclosure at the exterior of occupied structures. If CO<sub>2</sub> cylinders are provided in the interior of occupied structures, they shall be placed in a ventilated enclosure. A louvered fresh air intake shall be provided near the ceiling. Mechanical exhaust ventilation shall be provided at the rate of one air change every three minutes and take suction near the floor as far as practical from the door and fresh air intake. Exhausted air shall be ducted to the exterior of the building through a continuous pipe of at least 1 1/2 inches in diameter with the point of discharge so located as not to contaminate air inlets to any rooms or structures.

11.7 An automatic device shall be provided to deactivate chemical feeders when

their is no flow in the recirculation system.

**11.8 Test kit.** Colorimetric test kits shall be provided for the determination of free disinfectant residual, pH of the pool water and, where necessary, total alkalinity and calcium hardness. A supply of appropriate reagents for making each type of test shall be provided. Color standards shall be furnished for each of the tests, that allow an accurate comparison of the sample to be tested, both from the standpoint of color and density, and shall be reasonably permanent and nonfading. Electronic residual and pH monitoring devices may be used in addition to the test kit.

**11.8.1 Standards.** A DPD (Diethyl-P-Phenylene Diamine) test kit with the following increments: 0.2, 0.4, 0.6, 0.8, 1.0, 1.5, 2.0 and 3.0, as a minimum, shall be provided to measure the chlorine residual. If other halogens are used, an appropriate scale shall be provided.

**11.8.2 pH kit.** A pH test kit with a range from 6.8 to 8.2, accurate to the nearest 0.2 pH unit, shall be provided.

## **12.0 Bathhouse.**

**12.1 General.** Adequate dressing rooms and sanitary facilities shall be provided for all swimming pools. Omission of part or all of the poolside toilet facilities may be approved when such facilities are available within 300 feet and no more than one floor level above or below the swimming pool.

**12.2 Location.** The bathhouse shall be located so that the patrons must pass through the bathhouse to enter the pool. The layout of the bathhouse shall be such that the patrons on leaving the dressing room pass the toilets, then the showers, en route to the swimming pool.

**12.3 Bathhouse design.** Floors of the bathhouse shall be of smooth-finished material with nonslip surfaces, impervious to moisture, easily cleanable and sloped at least one-fourth inch per foot to drains. Carpeting shall not be permitted in shower and toilet areas. Junctions between walls and floors shall be coved and of smooth, impervious materials, free from cracks or open joints. Partitions between dressing cubicles shall terminate at least 10 inches above the floor, or shall be placed on continuous raised masonry or concrete bases at least four inches high. Lockers shall be set either on solid masonry or concrete bases at least four inches above the floor. Lockers shall be vented.

**12.4 Fixture requirements.** An adequate number of toilet and handwashing facilities shall be provided.

**12.4.1 Fixtures.** Plumbing fixtures and installations shall be in accordance with the Uniform Code.

**12.5 Suits and towels.** Where towels and/or swimming suits are provided, facilities shall be provided to adequately launder, store and sanitize these items after each usage.



12.6 Foot baths. The use of foot baths is prohibited.

12.7 Hose bibbs. Hose bibbs shall be provided within the bathhouse to enable the entire area to be flushed with a 50-foot hose. Hose bibbs shall be provided with antisiphonage devices.

### **13.0 Miscellaneous.**

13.1 Pool cleaning system. A cleaning system shall be provided to remove dirt from the bottom of the pool. When a vacuum system is used as an integral part of the recirculation system, connections shall be located in the walls of the swimming pool at least eight inches below the waterline, and at such points that the floor of the pool can be cleaned with not more than 50 feet of suction hose. Nothing in this section shall prohibit the use of surface skimmers for vacuum cleaning purposes.

13.2 Manual. A manual for operation of the pool shall be provided. It shall include instructions for each filter, pump or other piece of equipment, drawings, illustrations, charts, operating instructions and parts list, to permit installation, operation, winterization and maintenance.

**14.0 Spa pools.** Spa pools shall comply with the following special requirements, in addition to other applicable requirements contained in these design standards.

14.1 Construction material. The construction material shall comply with the requirements of item 4.0 of this section. Use of unlined wood tanks is prohibited.

14.2 Dimensional design.

14.2.1 The maximum water depth shall be 4'0" measured from the waterline. Exceptions may be made for spas designed for a special purpose, such as instruction, treatment, swimming and therapy.

14.2.2 The maximum depth of any seat shall be 2'0", measured from the waterline.

14.2.3 Spas shall be provided with a suitable handhold around their perimeter in areas where water depths exceed 3'6". Handholds shall be provided no further apart than 4'0", and may consist of any one or a combination of the following:

14.2.3.1 Coping, ledges, raised flanges, or decks along the immediate top edge of the spa shall provide a suitable slip-resistant handhold located not over 12 inches above the waterline.

14.2.3.2 Ladders, steps or seat ledges.

14.2.3.3 A railing, placed at or not over 12 inches above the waterline, fastened to the wall.

14.3 Steps. Design of steps shall conform to the following:

14.3.1 Step treads shall have a minimum unobstructed horizontal tread depth of 10 inches for a minimum continuous width of 12 inches.

14.3.2 Riser height shall not be less than 7 inches nor greater than 12 inches. When the bottom tread serves as a bench or seat, the bottom riser may be a maximum of 14 inches.

14.3.3 Step treads shall have slip-resistant tread surfaces.

14.3.4 Each set of steps shall be provided with at least one handrail to fully serve all treads and risers.

14.3.5 Seats or benches may be provided as part of the steps.

14.4 Ladders. Ladders shall conform to the requirements of item 5.8.2 of this section.

14.5 Recessed steps. Recessed steps shall conform to item 5.8.3.

14.6 Decks. Decks shall conform to the requirements set forth in item 5.9, with the exception that, at spa pools, decks may be waived for 50 percent of the pool perimeter. Placement of chairs or other furniture shall be prohibited within three feet of the edge of any spa pool.

14.7 Heater and temperature requirements.

14.7.1 Heaters shall comply with the standards contained in the Uniform Code.

14.7.2 The maximum temperature of the spa water shall be 104 degrees Fahrenheit. A thermostatic control for the water shall be required. An alarm system set to ring a bell or buzzer shall be installed to warn of any temperature over 104 degrees Fahrenheit. The alarm shall ring in the spa area as well as at the attendant's normal work station. A manual timer shall be installed that will require resetting after 15 minutes. This timer will ring a warning bell and may control the agitation pump.

14.8 Circulation systems. The equipment for circulation and filtration shall be sized to turn over the entire spa water capacity at least once every 30 minutes, and shall be capable of returning the spa water to a turbidity of less than 0.50 NTU within four hours following the peak bather load.

14.8.1 Overflow system. An overflow system shall be provided. It shall be designed and constructed so that the water level of the spa is at the operating level of the rim or weir device during use and nonuse of the spa. When surface skimmers are used, one surface skimmer shall be provided for each 100 square feet or fraction thereof of spa surface area. Recirculation through the skimmer shall be at least 30 gpm/skimmer. When two or more skimmers are used in a spa, they shall be located to maintain effective skimming action over the entire surface area of the spa. Skimmers shall be

approved, as set forth in item 9.0 of this section.

**14.9 Filters.** Filters shall be designed to maintain spa water under anticipated operating conditions in accordance with item 14.8 of this section. The requirements specified in item 10.0 shall apply.

**14.10 Pumps and strainers.** The recirculation pump and strainer shall comply with the requirements of item 9.7.

**14.11 Air induction systems.** An air induction system shall be designed to prevent water backup that could cause electrical shock hazards. Air intakes shall not induce contaminants (such as deck water, dirt, etc.) into the spa.

**14.12 Disinfection.** The requirements specified in item 11.0 shall apply. Equipment shall be designed to provide a minimum free residual chlorine of 1.5 mg/l at all times and capable of superchlorination at 10 mg/l to minimize problems with combined chlorine build-up.

**14.13 Safety.** A warning sign with an area of at least three square feet, stating the following caution statements, shall be conspicuously posted in the vicinity of the spa.

## **CAUTION**

1. Elderly persons, and those suffering from heart disease, diabetes, high or low blood pressure, should be prohibited from using the spa pool.
2. Unsupervised use by children is prohibited.
3. Do not use while under the influence of alcohol, anticoagulants, antihistamines, vasoconstrictors, vasodilators, stimulants, hypnotics, narcotics or tranquilizers.
4. Do not use alone.
5. Observe a reasonable time limit (e.g., 15 minutes), then shower, cool down and, if you wish, return for another brief stay. Long exposure may result in nausea, dizziness or fainting.
6. Help can be obtained by using the telephone and posted emergency telephone numbers for police, fire department, physician, ambulance and hospital.

**15.0 Special-purpose pools.** This item covers additional special requirements applicable to special-purpose pools. The design engineer shall consult with the department prior to preparation and submission of engineer's plans and specifications for special-purpose pools.

**15.1 White-water slides.** A white-water slide facility shall consist of one or more flumes, plunge pool, recirculation and chemical treatment facilities.

**15.1.1 Water depth.** The minimum plunge pool operating water depth shall be three feet. This depth should be maintained in front of the flume for a distance of at least 20 feet.

**15.1.2 Slide flume terminus.** The slide flume terminus shall be at a minimum depth of six inches below the plunge pool operating water surface level, at water surface level or up to a maximum of two inches above the water surface level. The flume shall be perpendicular to the plunge pool wall for at least ten feet from its end.

**15.1.2.1** The distance between the side of a flume exit and a plunge pool side wall should be at least 5 feet. The distance between sides of adjacent flume terminuses should be at least 6 feet.

**15.1.3 Pump reservoir.** A pump reservoir shall be provided for the slide pump intakes. It shall be connected to the plunge pool by a weir. The minimum reservoir volume shall be equal to twice the combined flow rate in gallons per minute of all filters and slide pumps.

**5.1.4** The flume shall be designed to prevent users from becoming airborne while in the ride.

**15.1.5 Recirculation rate.** The recirculation-filtration system of water slides shall recirculate and filter a water volume equal to the total volume of the facility in a period of one hour or less.

**15.2 Wave pools.** Wave pools shall be of such shapes and design as to be operated and maintained in a safe and sanitary manner.

**15.2.1** The recirculation-filtration system of wave pools shall be capable of one turnover every two hours. The recirculation system shall be operated continuously 24 hours a day.

**15.2.2** A perimeter overflow gutter shall be provided. The gutter may be interrupted in the area where the water is less than two feet deep.

**15.3 Special-purpose pools.** Facilities for persons with physical disabilities shall be designed to provide safe entry and exit from the pool and sanitary conditions. Facilities for parking, path of travel, walks, ramps, drinking fountains, telephone, toilets and showers shall comply with the requirements of Part 1100 of the Uniform Code.

**15.3.1 Pool entry.** Access for persons with physical disabilities shall be at

the shallow end of the pool. Pool entry should be an 18-inch-high block of steps followed by a normal set of pool steps. As an alternate, hoists or ramps are acceptable. Where removable ramps or steps are provided, the area beneath the ramp or steps shall be protected to prevent access to swimmers.

15.3.2 Steps and handrails. Stair steps should have risers 5-3/4 inches and a tread 12 to 18 inches wide to allow for sitting. A handrail 32 inches high, extending 18 inches beyond top and bottom steps, must be provided. A 22-inch handrail must be provided for children. A six-inch handrail will aid entry for those who cannot stand.

15.3.3 Wheelchairs, if immersed in pool, must be safe, waterproof and designed for use in the pool environment.

15.3.4 The recirculation-filtration system shall be capable of one turnover every four hours. The recirculation systems shall be operated continuously 24 hours a day.

15.4 Movable-bottom pools. Hydraulic-lift swimming pool floors, where provided, shall be safe and maintenance-free.

15.4.1 Inlets. A jet-water self-cleaning system should be provided so that the entire pool is self-cleaning. Two sets of return inlets located at two different heights should be provided to obtain adequate mixing at all times when the pool is shallow or deep.

15.4.2 Floor movement. Floor movement shall be designed to minimize turbulence and provide safe entry and exit by persons with physical disabilities.

15.4.3 Depth signs. A sign for pool water depth in use shall be provided and clearly lit and visible. "NO DIVING" sign shall also be provided. The control panel for changing water depth must be located in a safe place, accessible only to lifeguards and pool operator.

15.4.4 Diving boards. For depths other than design diving depth, the diving board must be in an upright position and chained or secured to stop use.

15.4.5 The recirculation-filtration system shall be capable of one turnover every four hours. The recirculation system shall be operated continuously 24 hours a day.

15.5 Rolling bulkheads. Rolling bulkheads, when used, shall be provided with traction wheels running on the pool floor or alternatively in the overflow gutter. When not in use, these should be stored in a safe manner. The design should be such that the bathers are not entrapped under the bulkhead.

15.6 Starting blocks. Starting blocks, when provided, shall be designed according to nationally recognized competitive design standards. These blocks shall be installed over a minimum water depth of six feet. Starting blocks shall only be

used during supervised practices or swim meets.

**6-1.30 Saturation index for swimming pools.** Saturation index is equal to the pH plus a temperature factor, plus a calcium hardness factor, plus an alkalinity factor, minus the constant 12.1.

$$\text{S.I.} = \text{pH} + \text{TF} + \text{CF} + \text{AF} - 12.1$$

The optimum saturation index is zero.

Tolerance limits are plus or minus 0.5.

If the index is positive (+), the water is super-saturated with  $\text{CaCO}_3$  and may deposit a protective coating or scale in the pipeline, particularly metal filters, valves and pumps.

If the index is negative (-), water will dissolve  $\text{CaCO}_3$  and may be corrosive.

Temp. (in degrees F)	TF	Calcium hardness	CF	Total alkalinity	AF
32	0.0	5	0.3	5	0.7
37	0.1	25	1.0	25	1.4
46	0.2	50	1.3	50	1.7
53	0.3	75	1.5	75	1.9
60	0.4	100	1.6	100	2.0
66	0.5	150	1.8	150	2.2
76	0.6	200	1.9	200	2.3
84	0.7	300	2.1	300	2.5
94	0.8	400	2.2	400	2.6
105	0.9	800	2.5	800	2.9
128	1.0	1000	2.6	1000	3.0

Example: Given temperature 68 degrees, total hardness 200 mg/l, total alkalinity 20 mg/l,  $\text{CaCO}_3$  and  $\text{pH} = 7.8$

$$\text{S.I.} = \text{pH} + \text{TF} + \text{CF} + \text{AF} - 12.1 \quad *(\text{Calcium hardness} -$$

$$0.70 \times 200 = 140 \text{ mg/l.}) \quad \text{S.I.} = 7.8 + 0.52 + 1.76 + 1.22 - 12.1 = (-)0.8$$

Therefore, the water is corrosive.

Note: Saturation index must be maintained slightly on the positive side within the tolerance limits.

**Normal Control Levels:**

pH: 7.4-7.8

temperature: 78 - 80 degrees (indoors)

total alkalinity: 80 - 120/mg/l

free chlorine: 0.6 (minimum)

saturation index: (-)0.5 – (+)0.5

calcium hardness: 180 - 250 mg/l

**Alkalinity control:**

- to increase - 1-1/2 lb of sodium bicarbonate  $\text{NaHCO}_3$  baking soda will raise the alkalinity of 10,000 gallons of water by 10 mg/l.
- to lower - add muriatic acid no more than one pint (1/8 gallon) per 5,000 gallons of pool water will lower alkalinity by 12 mg/l (or, add 1.25 lb of sodium bisulfate).

**pH:**

- to increase - use soda ash.
- to decrease - muriatic acid or sodium bisulfate.

\*Hardness Control: Calcium hardness is assumed to be 70% of total hardness.

To increase - 1 lb of calcium chloride will raise the calcium hardness of 10,000 gallons of water by 11 mg/l. It should be added in small amounts. To lower, dilute with soft water.

**6-1.31 Aquatic Supervisory Skill Requirements:** The New York State Department of Health is responsible for review of training courses and/or certification programs to determine acceptability.

**(a) SUPERVISION LEVEL IIa - POOL LIFEGUARD ONLY**

(1) The requirements of this Subdivision shall take effect May 15, 1993.

(2) No person shall be qualified under this Subdivision unless such person:

(i) Has a minimum age of 16 years (15 years is acceptable if employed at a facility where a supervisory lifeguard is present); and

(ii) Possesses a Current A.R.C Basic Life Support for the Professional Rescuer, C.P.R. or equivalent certification; the certification period must not exceed one year; and

(iii) Demonstrates a current ability to Swim 300 yards non-stop using various strokes in good form; surface dive to minimum 9 foot depth and bring a 10 lb. object to surface; and tread water for one minute; and

(iv) Possesses a current certificate from a recognized certifying agency acceptable to the State Health Commissioner, or has within not more than a consecutive three year period of time completed a minimum of 15 hours (19 hours if first aid skill are included) of training acceptable to the Commissioner covering those items set forth below (Time periods do not include final examination time or conditioning swims):

The training course and recertification program will be determined to be acceptable if, after a review, all the materials submitted by the program sponsor are determined to be complete and substantially meet the requirements of this section. Instructors shall have sufficient experience and knowledge in lifeguarding to effectively communicate the subject matter required by this section.

- (a) Program Goals and Objectives
- (b) Preventive Lifeguarding
- (c) Victim Recognition
- (d) Equipment:
  - (1) Rescue (buoys, tubes, reach pole)
  - (2) Lifeguarding
  - (3) Safety
  - (4) Personal
- (e) Types of Emergencies:
  - (1) Life Threatening
  - (2) Non-Life Threatening
- (f) Spinal Injury Management
- (g) Special Situations:
  - (1) Hypothermia
  - (2) Heat Emergencies
  - (3) Seizures
- (h) Communication Systems
- (i) Emergency Action Plans
- (j) Physical Fitness Concepts
- (k) Weather and Environmental Conditions
- (l) Records and Reports
- (m) Skills Practice
  - (1) Water Entry
  - (2) Approaches
  - (3) Moving Victim to Safety
  - (4) Equipment Use (Reach Poles, Buoys, Tubes)
  - (5) Surface Diving and Under Water Swimming
  - (6) Under Water Search
  - (7) Lifts and Assists
  - (8) Reaching Assists
  - (9) Throwing Assists
  - (10) Equipment Extension
  - (11) Rescue Breathing With Flotation
  - (12) Rescue Breathing Without Flotation
  - (13) Defense
  - (14) Escapes



- (15) Multiple Victim Rescues
- (16) Spinal Injury, Shallow Water
- (17) Spinal Injury, Deep Water

(n) \*First Aid and Emergency Care \*(Possession of a valid American Red Cross Standard First Aid or equivalent certification may be substituted for this segment):

- (1) Bleeding and Shock
- (2) Choking
- (3) Temperature Extremes
- (4) Spinal Injuries
- (5) Diabetic Emergencies
- (6) Seizures
- (7) Heart Attack and Strokes
- (8) Fractures, Dislocations, Sprains and Strains
- (9) Burns
- (10) Eye and Nose Injuries
- (11) Alcohol and Drug Overdoses

(v) Such person must:

(a) Correctly answer at least 80 percent of the questions on a written and/or oral test on theory and knowledge; and

(b) Successfully perform/demonstrate skills; and

(c) Successfully:

(1) Demonstrate knowledge of:

- (i) Approaches
- (ii) Escapes
- (iii) Carries/Tows
- (iv) Spinal (Shallow Water) Entry, approach, turn and support victim
- (v) Spinal (Deep Water) Entry, approach, turn and move victim to poolside or shallow end.
- (vi) Rescue Tube Swim/Use
- (vii) Surface Dive and Underwater Swim

**(b) SUPERVISION LEVEL IIb - POOL & BEACH LIFEGUARD**

(1) The requirements of this Subdivision shall take effect on May 15, 1993.

(2) No person shall be qualified under this Subdivision unless such person:

(i) Has a Minimum Age of 16 years (15 years is acceptable if a supervisory lifeguard is present); and

(ii) Has a Current A.R.C Basic Life Support for the Professional

Rescuer, CPR or equivalent certification; the certification period must not exceed one year; and

(iii) Demonstrates a current ability to swim 300 yards non-stop using various strokes in good form; and surface dive to minimum 9 foot depth and bring a 10 lb. object to surface; and tread water for one minute; and

(iv) Possesses a current certification from a recognized certifying agency acceptable to the State Health Commissioner or has within not more than a consecutive three year period of time, completed a minimum of 20 hours (24 hours if first aid skills are included) of training acceptable to the Commissioner covering those items outlined below (Time periods do not include final examination time or conditioning swims):

The training course and recertification program will be determined to be acceptable if, after a review, all the materials submitted by the program sponsor are determined to be complete and substantially meet the requirements of this section. Instructors shall have sufficient experience and knowledge in lifeguarding to effectively communicate the subject matter required by this section.

(a) Program Goals and Objectives

(b) Preventive Lifeguarding

(c) Victim Recognition

(d) Equipment

(1) Rescue (buoys, tubes, reach pole, surf board, backboard, boat, mask, fins, snorkel)

(2) Safety/Lifeguarding (Lifelines, Lifeguards stands)

(3) Personal (Uniform/clothing, whistle, sunglasses, binoculars, sunscreen)

(e) Orientation

(f) In-service Training

(g) Types of Emergencies

(1) Life Threatening

(2) Non-Life-threatening

(h) Spinal Injury Management

(i) Special Situations

(1) Hypothermia

(2) Heat Emergencies

(3) Seizures

(j) Communication Systems

(k) Emergency Action Plans

(l) Waterfront Areas

(m) Search & Recovery Equipment & Operations

- (n) Physical Fitness Concepts
- (o) Weather & Environmental Conditions
- (p) Records & Reports
- (q) \*First Aid and Emergency Care \*

(Possession of a valid American Red Cross Standard First Aid or equivalent certification may be substituted for this segment):

- (1) Bleeding and Shock
- (2) Choking
- (3) Temperature Extremes
- (4) Spinal Injuries
- (5) Diabetic Emergencies
- (6) Seizures
- (7) Heart Attacks and Strokes
- (8) Fractures, Dislocations, Sprains and Strains
- (9) Burns
- (10) Eye and Nose Injuries
- (11) Alcohol and Drug Overdoses

(r) Skills Practice

- 1) Water Entry
- (2) Moving Victim to Safety
- (3) Equipment Use (buoys, tubes, poles, rescue board, back board, boat, mask, fins, snorkel)
- (4) Surface Dive and underwater swimming
- (5) Underwater Search
- (6) Search & Recovery
- (7) Lifts & Assists
- (8) Throwing Assists
- (9) Reaching Assists
- (10) Equipment Extension
- (11) Rescue Breathing with Flotation
- (12) Rescue Breathing without Flotation
- (13) Defense
- (14) Escapes
- (15) Multiple Victim Rescues
- (16) Spinal Injury, Shallow Water
- (17) Spinal Injury, Deep Water

(v) Such person must:

- (a) Correctly answer at least 80 percent of the questions on a written and/or oral test on theory and knowledge; and
- (b) Successfully perform/demonstrate all skills; and
- (c) Successfully:

- (1) Complete a 25 yard freestyle swim in 20 seconds; and
- (2) Perform a shallow dive, sprint 25 yards, recover 10 lb.

object from pool edge or gutter, then return 25 yards supporting 10 pound object; and

(3) Demonstrate knowledge of:

- (i) Approaches
- (ii) Escapes
- (iii) Carries/Tows
- (iv) Spinal (Shallow Water) Entry, approach, turn and support victim
- (v) Spinal (Deep Water) Entry, approach, turn and move victim to poolside or shallow end.
- (vi) Rescue Tube Swim/Use
- (vii) Surface Dive and Underwater Swim
- (viii) Tread water for one minute holding a diving brick with both hands.

(c) SUPERVISION LEVEL III

(1) The requirements of this Subdivision shall take effect on May 15, 1993.

(2) No person shall be qualified under this Subdivision unless such person:

- (i) Has a Minimum Age of 18 years; and
- (ii) Possesses a Current ARC Community CPR or Equivalent Certification; the certification period must not exceed one year; and
- (iii) Is competent to:
  - (a) Understand and apply the Rules and Regulations of this part and implement the safety plan, and
  - (b) Evaluate Environmental Hazards; and
  - (c) Use Lifesaving Equipment and Facility; and
  - (d) Undertake Bather/Crowd Control.

(d) SUPERVISION LEVEL IV

(1) The requirements of this Subdivision shall take effect on May 15, 1993.

(2) No person shall be qualified under this Subdivision unless such person:

- (i) Is at least 18 years of age; and
- (ii) Possesses a Current ARC Community CPR or equivalent certification; the certification period must not exceed one year.

STATE OF NEW YORK  
DEPARTMENT OF HEALTH